United States Environmental Protection Agency
Region 9

In the Matter of :	
Iron Mountain Mine	Order No. 91-7
Iron Mountain Mines, Inc., T.W. Arman, and Rhone-Poulenc Basic Chemicals, Co.	
Respondents.	
Proceeding under Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, (42 U.S.C. section 9606)	

ORDER

I. Jurisdiction

This Order is issued to Iron Mountain Mines, Inc., T.W. ("Ted") Arman, and Rhone-Poulenc Basic Chemicals Co. (formerly Stauffer Chemical Co., A Division of Rhone-Poulenc) (Respondents) pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, by authority delegated to the Administrator of the United States Environmental Protection Agency (EPA), and redelegated to the EPA Regions.

The Director of the Hazardous Waste Management Division, EPA Region 9, has determined that there may be an imminent and substantial endangerment to the public health, welfare or the environment because of the release and threatened release of hazardous substances from the Iron Mountain Mine facility, including past releases and continuing threatened releases.

II. Definitions

Unless otherwise expressly provided herein or below, terms used in this Order which are defined in the Comprehensive Environmental Response, Compensation and Liability Act, as amended ("CERCLA"), or in regulations promulgated under CERCLA, shall have the meaning assigned to them in the statute or regulations. Whenever terms listed below are used in this Order or in the Exhibits or Appendices attached hereto or incorporated hereunder, the following definitions shall apply:

A. "Appendix A" shall mean the Record Of Decision (ROD)

for the interim Remedial Action.

B. "Appendix B" shall mean the following manuals: Maintenance Manual, Phase I Richmond Adit Rehabilitation, Iron Mountain Mine, Redding, California; EPA WA 127-9L17.0; November 1989; Adit Procedures Manual, Phase I Richmond Adit Rehabilitation; Iron Mountain Mine, Redding, California; EPA WA 127-9L17.0; November 1989; Operation and Maintenance Manual, Partial Cap Above Richmond Mine; Iron Mountain Mine, Redding, California; EPA WA 228-9R17.0; November 1989; Spring Creek Watershed Pollution Control Program; Operation and Maintenance Manual, Slickrock Creek Diversion; January 1990.

C. "Appendix C" shall mean the Subcontract Documents for Maintenance Support Services at Iron Mountain Mine, Redding, California" dated October 19, 1990.

D. "Appendix D" shall mean the Statement of Work for the workplan and schedule.

E. "Contractor" shall mean the individual, company or companies retained by or working on behalf of Respondent(s) to undertake and complete the Remedial Action.

F. "Day" shall mean a Calendar day unless expressly stated to be a working day. "Working day" shall mean a day other than a Saturday, Sunday or legal holiday. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or legal holiday, the period shall run until the end of the next working day.

G. "EPA" shall mean the United States Environmental

Protection Agency.

H. "National Contingency Plan" or "NCP" shall mean the National Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, including any amendments thereto.

I. "IMM Site" or the "Site" means the "facility," as that term is defined at Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), which is located at Iron Mountain Mine, including all locations where hazardous substances released at or from IMM have come to be located.

J. "Oversight" means the United States' inspection of remedial work and all actions necessary to verify the adequacy of performance of activities and reports of Respondents as required under the terms of this Order.

K. "Record of Decision" or "ROD" shall mean the document signed by the EPA Assistant Administrator on October 3, 1986, which is attached hereto as Appendix A.

III. Findings of Fact

Site description

Iron Mountain Mine ("IMM" or "the Site") is located in the southeastern foothills of the Klamath Mountains, approximately nine miles northwest of the City of Redding. Between the 1860's and 1963, IMM was periodically mined for iron, silver, gold, copper, zinc, and pyrite. The mine area is located on 4,400 acres of property that includes an open pit mine, underground workings,

waste rock dumps and tailings piles.

IMM averages 70-80 inches of precipitation per year, most of it falling in the form of rain between the months of November and April.

IMM is drained by Boulder Creek to the north, and Slickrock Creek to the south of the mine. Boulder Creek, a perennial stream, receives a portion of its flows from the Lawson and Richmond adits via their mine portals. Slickrock Creek, an intermittent stream, receives discharges from underground seepage and surface flows from the Brick Flat Pit area. A debris slide diverted the original Slickrock Creek drainage and buried adits from which acid mine drainage is emanating.

Slickrock Creek and Boulder Creek flow southeastward into Spring Creek, which flows into the Spring Creek Reservoir, created by the construction in 1963 of the Spring Creek Debris Dam, a unit of the Central Valley Project. Releases from Spring Creek drain into Keswick Reservoir, where they mix with releases of clean water from Shasta Dam.

Historic mining activity at IMM has fractured the mountain increasing access of surface water and rain water and oxygen to the mineralized zones within the mine. Precipitation and surface water infiltrating the mountain form sulfuric acid in the presence of oxygen due to the oxidation of the pyrite. The sulfuric acid is drained by the mine workings and leaches out copper, cadmium, zinc and other metals. This heavy metal laden acid mine drainage flows out of the mine portals and seeps. Much of

the metals bearing acid mine drainage is ultimately channeled by the creeks into the Spring Creek Reservoir. The Bureau of Reclamation periodically releases the stored acid mine drainage impounded behind Spring Creek Debris Dam into Keswick Reservoir. Planned releases are timed to coincide with the presence of diluting waters from Shasta Dam. On occasion, unplanned spills and excessive waste releases have occurred from Spring Creek Debris Dam, resulting in the release of harmful quantities of metals in the Sacramento River. In addition, over time there has been an accumulation of metals-bearing sediments in the Spring Creek and Keswick Reservoirs and in the Sacramento River.

History of site ownership

IMM was first secured for mining purposes in 1865. Limited mining began in 1879 for the recovery of silver and gold. In 1895, IMM was sold to Mountain Mining Co., Ltd., following discovery of massive copper sulfide deposits. Mining continued under their ownership until 1897 when the property was transferred to Mountain Copper Co., Ltd. of London, England. Mountain Copper Co., Ltd., conducted extensive mining operations at the site during the first half of the twentieth century. In 1955 a large landslide covered two mine portals in Slickrock Creek Canyon. In 1956, underground mining of the Richmond ore body ceased. Open pit mining of the Brick Flat Pit continued until 1962.

In 1967, Stauffer Chemical Co. acquired all of the shares of Mountain Copper Co., Ltd. In 1969, Mountain Copper Co., Ltd., sold the properties comprising Iron Mountain Mine to Mountain

Copper, Ltd.'s sole shareholder, Stauffer Chemical Co. Stauffer Chemical Co. subsequently liquidated Mountain Copper Co., Ltd.

Stauffer operated cementation plants on the property at least part of the time it owned IMM. Acid mine drainage continued to be formed during this period of ownership and the release of hazardous substances into the environment at IMM continued during the period of Stauffer's ownership of IMM. On November 5, 1976, the Regional Water Quality Control Board, Central Valley Region ("Regional Board") issued Stauffer an order requiring Stauffer to take corrective measures to reduce the discharge of heavy metals into the Sacramento River.

In December 1976, Stauffer transferred thirty one parcels of the IMM property to Iron Mountain Mines, Inc. ("IMMI").[1] IMMI, a California corporation, is the current owner of IMM. Ted Arman is the president of IMMI. IMMI has owned and operated the site since 1976. Since 1977, IMMI has operated off and on two copper cementation plants to recover copper from the acid mine drainage from the Slickrock and Boulder Creek drainages.

Subsequent to the sale of the IMM property, Stauffer was itself the subject of several transactions. Stauffer Chemical Co. is currently Rhone-Poulenc Basic Chemicals Co., a Delaware corporation, having changed its name September 18, 1989 from Stauffer Chemical Co., a Division of Rhone-Poulenc, Inc.

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1. Five parcels were transferred to IMMI in December, 1980.

Regulatory history

Prior to the IMMI's acquisition of the property, on October 25, 1976 and November 1, 1976, Regional Board staff contacted corporate officers and legal staff of IMMI to present Regional Board concerns regarding the discharge of heavy metals into Spring Creek. At that time, IMMI agreed that the discharge from the property is a water quality problem and stated their goal was to eliminate most, if not all, of the discharges from IMM.

On June 9, 1977, IMMI submitted a report of waste discharge for the discharge of acid mine drainage and run-off containing high concentrations of metals and acid compounds to the Regional Board. At that time, the Regional Board referenced a 1976 United States Geological Survey Report to the effect that Spring Creek contributes 50 percent of the copper and 42 percent of the zinc to the Sacramento River at Redding. The Regional Board adopted waste discharge requirements for discharge of acid mine drainage and run-off from several non-point sources in July 1977. On August 17, 1977 the Regional Board issued IMMI an order requiring that IMMI, among other matters, reduce the rate of discharge of copper into Slickrock Creek from the Old Mine/No. 8 by 95 percent and eliminate or reduce to the maximum extent practicable, the discharge into Boulder Creek of run-off containing heavy metals.

On September 22, 1978, the Regional Board issued IMMI waste discharge requirements and an NPDES permit (Order 78-152) for discharges of copper cementation plant effluent of treated mine drainage from the Richmond and Hornet Mines into Boulder Creek

and from the Old Mine/No. 8 into Spring Creek.

On January 9, 1979, the Regional Board notified IMM of violations and threatened violations of Order No. 78-152 and on January 26, 1979, issued IMMI a cease and desist order for these violations and threatened violations. On July 27, 1979, the Regional Board found IMMI in violation of Order No. 78-152 and the cease and desist order. The Regional Board found that IMMI partly complied with the Order for only two weeks. The inefficient operation of its metals removal operations resulted in a potential overflow condition at Spring Creek Debris Dam and required controlled releases from the Spring Creek Debris Dam. Not only did this event require the otherwise unnecessary release of 70,000 acre feet of irrigation water, the Regional Board estimated that the release of IMM contaminated water killed 10 percent of the juvenile chinook salmon and 50 percent of the juvenile steelhead trout present in the Sacramento River below Keswick Dam.

This matter was referred to the California Attorney General and in July 1980 a stipulated preliminary injunction was issued by Shasta Superior Court. As part of that stipulated injunction, IMMI agreed to install within six months a new system for treatment of zinc, cadmium, and other metals. In March 1981, IMMI was found in contempt of court for failure to comply with conditions in the injunction.

On July 24, 1981, the Regional Board found that IMMI continued to be in violation and requested assistance in abating the

nuisance from other public agencies.

EPA involvement

On April 5, 1982, EPA issued general notices of liability to Stauffer and IMMI for the past and continuing threatened releases of hazardous substances from IMM and the resulting damage to and destruction of natural resources.

On September 8, 1983, IMM was included on the EPA National Priorities List of the nation's most contaminated sites. That month, EPA commenced a Remedial Investigation and Feasibility Study ("RI/FS") to study and evaluate potential remedies for the Site. During the course of that investigation, which extended from September 1983 to April 1985, EPA conducted weekly sampling of five major sources at the mine and three locations on Spring Creek, and biweekly sampling at four locations along the Sacramento River for heavy metals; installed flow measurement stations at eight locations, including mine portals and downstream receiving waters; measured precipitation at six gauges throughout the area; reviewed all existing literature on the site; conducted a groundwater investigation; and conducted two comprehensive surface sampling surveys, involving 76 sampling points, in September 1983 and December 1983.

During a dry period in September 1983 and a rainy period in December 1983 EPA conducted the two intensive sampling programs to locate and quantify the sources of heavy metals pollution at the IMM. The Regional Board conducted sampling in April 1983 which reflect usual late winter conditions when the mountain is

saturated. The sampling station locations are identified in Figure 2 of the Record of Decision. The rankings of the heavy metals contribution for copper, cadmium and zinc are shown in Figure 3 of that document.

The RI identified five major sources as responsible for approximately seventy two percent of the copper and eighty six percent of the zinc and cadmium being discharged from the site during the sampling period. These sources were: the Richmond Portal, the Lawson portal, Old Mine/No. 8 seep, Big Seep, and the Brick Flat Pit By-Pass. In addition to the five major sources, EPA identified numerous other sources of releases of metals and acid mine drainage at the Site. The studies completed by EPA in 1983 show that the flow of acid mine drainage through tailings piles on the IMM property is also contributing to metals contamination.

On October 3, 1986, Assistant Administrator J. Winston Porter approved a Record of Decision for the Site based substantially upon the information developed under the RI/FS. Pursuant to 40 C.F.R. § 300.68(i)(5)(ii)(now 40 C.F.R. § 300.420(f)(1)(ii)(C)), the remedy selected did not meet all applicable or relevant and appropriate federal requirements because of the need to use Fund moneys at other sites. Consequently the Iron Mountain Mine ROD did not address all sources of contamination at the Site or the means to correct all releases.

The ROD approved for the Site authorized the following activities: the construction of a cap over the Richmond mineral

deposit to reduce infiltration into this source of acid mine drainage; diversion of clean surface water from the Upper Spring Creek watershed before it reaches the portion of the basin affected by IMM; diversion of clean water from the South Fork of Spring Creek; diversion of clean water from Upper Slickrock Creek; enlargement of the Spring Creek Debris Dam; installation of necessary perimeter controls; and conducting a study to better define the use of low density cellular concrete to minimize the formation of acid mine drainage.

This order requires Respondents to conduct necessary action to provide operation and maintenance of remedial actions completed to date and to supplement previous orders which have required that Respondents construct, operate and maintain treatment facilities and diversions structures.

On July 19, 1988, EPA initiated construction of the partial cap over Richmond mineralized zone. As part of that construction, EPA utilized tailings materials from the Minnesota Flats area as well as selected other tailings piles which contained relatively high concentrations of copper, cadmium, and zinc.

EPA began design of the stream diversion structures in September 1987. EPA began construction of the Slickrock Creek diversion in July, 1989.

Uncontrolled sources of contamination

Additional sources requiring control include the tailings piles, mineral stockpiles and dumps and seeps in the Boulder Creek and Slickrock Creek drainages. During storm events, tail-

ings piles, mineral stockpiles and dumps in the Boulder Creek drainage contribute up to 7 percent of the cadmium, 20 percent of the copper and 4 percent of the zinc in Boulder Creek. Groundwater and surface water migrating through an old waste rock dump serve as the sources of the drainage from the Big Seep in the Slickrock Creek drainage. This seep and others in Slickrock Creek contribute from two percent to 25 percent of the hazardous metals in Slickrock Creek. The hematite pile along Slickrock Creek contributes about one percent of the metals in Slickrock Creek.

The studies completed by EPA in 1983 show that site 14, a tailings pile with a seep located above Boulder Creek, contributes as much as 26 pounds a day of heavy metals copper, cadmium and zinc; site 34, the hematite pile, provides runoff containing up to 28 pounds a day of heavy metals; and site 15, tailings with a seep located near site 14, is the source of up to 13 pounds a day of these metals. A fourth tailings pile, site 90, furnished up to 7.8 pounds of metals a day. Site 90 was substantially removed by EPA in 1988 and used as fill material in the cap at Brick Flats Pit. In addition to the tailings pile studied in the the 1983 studies, there are numerous tailings piles scattered about the property which have the potential to contribute metals contamination in the Spring Creek drainage.

Operation of cementation plants has historically been used to treat some of the acid mine drainage in the Boulder Creek and Slickrock Creek drainages. Two cementation plants have been

operated at IMM, one in Boulder Creek and a second plant in Slickrock Creek. These plants, when properly operated have reduced, but not eliminated, the copper concentrations in the acid mine drainage. The cementation plants do not appreciably reduce cadmium or zinc concentrations. The cementation plants receive flows from some of the main sources of contamination at IMM, including the Richmond portal, the Lawson portal and the Old Mine/No. 8 seep.

The discharge from the Boulder Creek cementation plant contributes approximately 20 to 40 percent of the copper, 90 to 95 percent of the cadmium, and 90 to 95 percent of the zinc measured in Lower Boulder Creek. The Boulder Creek cementation plant receives acid mine drainage continually from the Richmond and Lawson mine portals through a series of pipes and flumes. Leaks and spills from the collection system are additional sources of pollutant discharges.

The Slickrock cementation plant receives drainage discharged continuously from the Old Mine/No. 8 mine seep. The discharge from the Slickrock cementation plant contributes approximately 75 to 95 percent of the copper, cadmium, and zinc measured in Lower Slickrock Creek.

On July 19, 1988, the Regional Board adopted Cleanup and Abatement Order No. 88-713 ordering IMMI to control continuing discharges of metals. The Order required IMMI to reduce the discharge of acid from the Richmond workings to achieve a 95 percent reduction of acid and heavy metal concentrations; continue to

treat the Richmond adit discharge through April 1, 1989, or later if deemed necessary by the Regional Board; and implement modifications as needed and continue operating the Boulder and Slickrock copper cementation plants to achieve 95 percent copper removal from the Lawson and No. 8 adit flows. The Regional Board issued this Order to prevent injury to fish and other aquatic resources as a result of toxic metal concentrations. Because of the prevailing drought conditions, water storage in Shasta and Trinity Reservoirs was low, rendering these historic sources of dilution flows substantially unavailable in the event of a release of IMM contaminated water from Spring Creek Reservoir. If the discharge of acid and metals were not abated, the Regional Board found, "the continued discharge during the upcoming fall and winter will cause a condition of pollution and nuisance in Keswick reservoir and the Sacramento river. The acid mine drainage, without the benefit of dilution from receiving waters, will result in concentrations of heavy metals that will be acutely toxic to fish and other aquatic life and will unreasonably affect beneficial uses in Keswick Reservoir and the Sacramento River."

The California Department of Fish and Game, in a letter supportive of the Regional Board's action, stated that "[w]ithout increased treatment, uncontrolled releases of acid mine drainage mixed with the legal minimum streamflow release from Keswick Dam will result in large scale destruction of fishlife as well as loss of domestic water supplies." (Letter of July 8, 1988 from

A.E. Naylor, Department of Fish and Game to William Crooks, Regional Board.) The Department of Fish and Game identified the following fisheries resources at risk: winter run chinook, fall run chinook, spring-run and late fall-run chinook, and steelhead trout and juvenile rainbow trout. The Department of Fish and Game estimated the economic value of the fall run chinook population in the area impacted by the mine discharge as over $30 million for 1988 and stated that an extremely popular sport fishery is supported by the fall-run and resident rainbow trout.

The Regional Board's findings noted, among other matters that the Richmond adit is the source of 80 percent of the zinc and cadmium and 40 percent of the copper discharged from the mine. Although the copper cementation plant removes copper, this process does not reduce the zinc or cadmium which are equally toxic to aquatic life. The Regional Board stated that lime or limestone neutralization as a method of reducing metals levels has been thoroughly tested on IMM and has been proven to be an effective method of removing acids and toxic metals.

IMMI responded to the Order on July 29, 1988. IMMI refused to comply with the Order, claiming that its diversion work had already "significantly reduced mine water discharges" and that "[i]t is most unlikely that the upcoming fall and winter rainfall will cause a condition of pollution or nuisance." After a review of this response, the Regional Board wrote IMMI on September 1, 1988 that IMMI's response was inadequate, that IMMI was in violation of the Order, and that the State would proceed with at-

tempts to treat the mine drainage.

In September, 1988, EPA in cooperation with the Department of Fish and Game and the Regional Board began setting up a treatment plant to treat the acid mine drainage from the Richmond Portal. The performance goal for that operation was the removal of 95 percent of the cadmium and zinc concentrations in the acid mine drainage. The treatment plant was scheduled to be in place by November 1, 1988, in time for the beginning of the usual rainy season. EPA operated the treatment plant from mid-December, 1988 to February 28, 1989.

EPA's operation of the lime treatment facility resulted in a significant reduction in the metals and acidity of the mine runoff. As a result, during the winter months EPA was operating the lime treatment facility it was possible to release impounded waters behind Spring Creek Debris Dam into Keswick Reservoir without adverse impacts despite the low quantities of receiving water available for dilution. In early March, EPA removed its lime treatment plant when it appeared that the drought would continue. At that time, the Spring Creek Reservoir was evacuated to the point that there was sufficient capacity to store average runoff during March.

In March, 1989, the Bureau of Reclamation reduced flows in the Sacramento River from Keswick Dam to 2300 cubic feet per-second, as allowed under a 1960 Memorandum of Understanding between the Department of Fish and Game and the Bureau of Reclamation.

Unusually heavy March storms, greatly exceeding the monthly average, filled the Spring Creek Debris Dam, resulting in a dangerous situation in which high acid spillovers from Spring Creek would enter the river without sufficient diluting flows from the Central Valley Project. Spring Creek Debris Dam overflowed at a high rate for a week. To minimize damage over the entire spill period, an estimated 64,000 acre feet of water were released to provide diluting flows. Despite the release of additional dilution flows, the overflow killed an estimated 10 percent of the late fall chinook salmon and 50 percent of the steelhead trout.

On July 25, 1989, Pete Bontadelli, Director of the California Department of Fish and Game wrote Daniel McGovern, Regional Administrator, Region 9, requesting EPA assistance in addressing the impending fish emergency for the winter of 1989-90. In that letter, Mr. Bontadelli stated that "[p]oor water supply conditions and the continued discharge of acid and toxic metals from the site threaten to adversely impact very valuable species of salmon and steelhead....The prolonged drought over the last two years coupled with high water demands is forecasted to result in poor water supply conditions in Shasta Reservoir this winter. The U.S. Bureau of Reclamation (USBR) had previously stated that releases to dilute toxic waste from Iron Mountain Mine would not be made available when the reservoir level is so low that there is no justification for anticipatory or actual flood control releases. The forecast for this winter's storage in Shasta Reservoir is approximately a million acre-feet below the flood

control level (based upon a historic annual inflow to Shasta Reservoir at 30th percentile)."

In response to this renewed threat to the fisheries in the fall of 1989, EPA issued Respondents an order requiring, among other matters, implementation of a treatment plant during the winter of 1989-1990.

In January 1989, the Bureau of Reclamation, working under an interagency agreement with the EPA, completed a thirty per cent design for the Upper Spring Creek diversion and a thirty per cent design for the South Fork Spring Creek diversion. On October 3, 1989, EPA notified Respondents that it would be inviting them to take over the construction, operation and maintenance of the diversion structures. On January 26, 1990, EPA formally invited Respondents to participate in negotiation of a Consent Decree whereby Respondents could assume responsibility for construction of the diversions. The Respondents failed to submit an offer to do so.

On March 28, 1990 EPA issued Respondents Order No. 90-08, requiring Respondents to construct designed diversion structures for Upper Spring Creek and South Fork Spring Creek. EPA subsequently suspended construction of the South Fork Spring Creek diversion. The order also required operation and maintenance of the structures, and operation and maintenance of the site roads. The Upper Spring Creek diversion is currently under construction.

EPA is currently working on an RI/FS to examine possible source controls for releases from the Richmond mineralized zone

and the Boulder Creek drainage.

Affected environment

The Sacramento River is a valuable fisheries resource and is used as a source of drinking water by the City of Redding, with a population of over 50,000.

The Central Valley Regional Board adopted water quality standards applicable to the Sacramento River and the tributaries which flow into the Sacramento River from IMM on April 27, 1984. The State Water Resources Control Board and the EPA subsequently approved these standards. These standards limit dissolved concentrations of cadmium (0.00022 mg/l), copper (0.0056 mg/l), zinc (0.016 mg/l), and pH (6.5 to 8.3 with a maximum deviation of 0.3 units from ambient conditions). The California Department of Fish and Game has identified these levels of metals as protective of all life stages of anadromous salmon and steelhead below Keswick Dam. These recommended levels were adopted by the Regional Board as Basin Plan objectives for the Keswick Dam area and approved by the State Board in August, 1984. EPA approved the objectives under CWA 303 on August 7, 1985. EPA Water Quality Criteria for protection of aquatic life below Keswick Dam are cadmium (0.00055 mg/l), copper (0.0054 mg/l), and zinc (0.047 mg/l).

Aquatic Life

The runoff of metals bearing acid mine drainage has impacted the fishery resources of the Sacramento River. The major fishery resources of the Sacramento River below Keswick Dam include

migratory populations of salmon and steelhead and resident populations of wild trout. The adult salmon and steelhead migrate from the ocean to the river where they reproduce. The young remain in the river through the juvenile life stage or sometime longer in the case of steelhead. Metal laden discharges from the Spring Creek Basin frequently occur at the time of year that the salmonoid life stage most sensitive to metal toxicity is abundant in the river.

The monetary value of the chinook salmon and steelhead trout runs produced upstream from the Red Bluff Diversion dam has been estimated to be $33.7 million annually. The economic value of these fishery resources, once restored, is expected to increase to $72 million annually. The metals from IMM have contributed to fish kills as well as incidents of sublethal toxicity which reduce the overall productivity of the population, including effects such as reduced growth rates, physiological problems, and diminished immune response.

The continuous release of metals from IMM has contributed to a steady decline in the fisheries population in the Sacramento River. California Fish and Game has estimated that the fall run of chinook salmon in the upper Sacramento River has ranged from an estimated high of 400,000 in 1953 to a low of 20,000 with an average decline of 87 percent in the last 20 years. The average run of salmon has declined from from 275,000 to 75,000 salmon. The upper Sacramento River once produced half of the state's chinook salmon.

IMM has been responsible for numerous fish kills in the Sacramento River. There have been thirty nine documented fish kills near Redding since 1940. In February, 1964 an estimated 100,000 fish were killed in a single incident. A fish kill in January-February 1967 killed an estimated 47,100 trout. In 1969, a significant fish kill that destroyed all the salmon fry in the Redding area, occurred when the Spring Creek Debris Dam overflowed. During overflow of the debris dam in January, 1978, there was a documented loss of 37 percent of the salmon fry in the Redding area. In January 1979, a release of contaminated water made necessary by IMMI's violation of its Regional Board order led to another significant fish kill. Most recently, IMMI's violation of another Regional Board order was a contributing factor in yet another fish kill in March, 1989. In addition to these fish kills, an accidental release of IMM sediments impounded behind the Keswick Dam occurred in the Fall of 1988, resulting in a plume of heavy metal laden sediments flowing down the Sacramento River, causing the City of Redding to close its municipal water intake wells.

In Mr. Bontadelli's letter requesting EPA assistance with the impending fish emergency for the winter of 1989-90, he stated that "It is well documented that drainage from Iron Mountain Mine contains concentrations of metals and acid toxic to fish and other aquatic life. Fishery resources vulnerable to destruction include four races of chinook salmon, steelhead, and rainbow trout. The chinook salmon include: the winter-run chinook, which

is going to be listed as a State endangered species and a Federal threatened species; spring-run and late fall-run chinook, which are both at low population levels; and the fall-run chinook, which is the stock that supports California's important sport and commercial salmon fishery. Last year the spawning grounds that were protected from fish kills from Iron Mountain Mine produced over 30 million dollars worth of salmon. Historic fish kills have destroyed fish that are life stages between embryo and adult in as little as a 48-hour exposure period. Fish kills impact the sport and commercial salmon fisheries in future years.

Water Resources

In recent years, recurring drought conditions have underscored the importance of water conservation in California. The continued need to rely upon water from Lake Shasta and Keswick Reservoir to mitigate the impacts of acid mine drainage renders significant quantities of water unavailable for beneficial uses, resulting in a significant adverse impact on the human environment. An estimated 64,000 acre feet were released in March, 1989 to prevent a massive fish kill. During a late winter storm it normally requires a Shasta release 40 to 50 times that of Spring creek to provide non-toxic conditions for salmon.

As water demands continue to grow in the state, it is probable that less dilution water will be made available for IMM wastes.

Public health impacts.

Near its source, the acid mine drainage contains sulfuric

acid in concentrations that could cause serious eye injuries and skin irritation through dermal contact. Although the property owner has posted the property to discourage trespassers who might become exposed, the property is located between two heavily used National Forests and direct exposure can not be ruled out as a possibility.

Direct ingestion of contaminated fish from the Sacramento River does not pose a present health threat. However, without remediation, IMM releases will continue to deposit effluent in sportfishing areas and the concentration of cadmium will continue to be elevated above normal levels, resulting in potential bioaccumulation of cadmium in the livers and kidneys of those who ingest contaminated fish from the river.

Need for Access Road to Slickrock Diversion

Component remedial actions need to be inspected and maintained in order to remain effective. EPA currently uses a winding, narrow, rugged dirt mountain road approximately six miles long to get access to the Slickrock diversion structure. Last winter, the catch basins needed to be cleaned out to permit the structure to work properly. The road conditions hinder access. The road has no other uses and is not maintained for any other purpose. It is difficult to maintain the road to allow passage of equipment.

In addition to general difficulties caused by the poor condition and length of the road, during the winter EPA is unable to work on the diversion from the road side of the diversion,

greatly hindering EPA's ability to complete necessary repairs.

A much shorter route can be built that would greatly eliminate these difficulties. EPA has completed a conceptual design for a road to be built directly to the Slickrock diversion. The road would be about a quarter mile in length.

Need for Weir

Completion of the construction of the diversion at Upper Spring Creek will decrease the flows of water into Spring Creek Debris Dam. It will also increase the toxicity of the water behind SCDD because of the reduction in the dilution waters, making it even more important to obtain accurate information on the amount of water being released from SCDD. In order to accurately gauge the flows that will be released from SCDD, it is necessary to install a weir below SCDD.

IV. Conclusions of Law

A. Iron Mountain Mine, Inc., Ted Arman and Rhone-Poulenc Basic Chemicals, Co. are "persons" as defined in Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

B. The transaction whereby the IMM property was transferred from Stauffer to IMMI is a "contractual relationship" as defined in Section 101(35) of CERCLA, 42 U.S.C.§ 9601(35).

C. The Iron Mountain Mine is a "facility" as defined in Section 101(9) of CERCLA, 42 U.S.C. § 9601(9). In United States v. Iron Mountain Mines and T.W. Arman (E.D.Cal.; August 29, 1988) Docket No. 87-1189, p. 3, the court found that the Site is a

facility as defined by CERCLA.

D. Copper, cadmium, zinc and acid mine drainage are "hazardous substances" as defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14). In United States v. Iron Mountain Mines and T.W. Arman (E.D.Cal.; August 29, 1988) Docket No. 87-1189, p. 3, the court found that hazardous substances within the meaning of CERCLA are located at the Site.

E. The release of acid mine drainage, containing cadmium, copper and zinc constitutes a "release" or "threatened release" of hazardous substances into the environment as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22). In United States v. Iron Mountain Mines and T.W. Arman (E.D.Cal.; August 29, 1988) Docket No. 87-1189, p. 3, the court found that EPA's conclusions "that there had been releases of hazardous substances at the Site and that releases would occur in the future...are overwhelmingly supported by the available data."

F. Iron Mountain Mine, Inc., Ted Arman and Rhone-Poulenc Basic Chemicals, Co. are liable persons as provided in Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

G. Iron Mountain Mine, Inc. and Ted Arman are liable as the current owner and operator of IMM. Section 107(a)(1) of CERCLA, 42 U.S.C. § 9607(a)(1).

H. Rhone-Poulenc Basic Chemicals, Co. is liable as the owner and operator of the facility during the time of disposal. Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2). Rhone-Poulenc Basic Chemicals, Co. is liable as the successor corpora-

tion to Stauffer Chemical Co., the successor to Mountain Copper, Ltd. Stauffer's acquisition of all of the stock of Mountain Copper, Ltd., its sale of the mine to itself and dissolution of Mountain Copper, Ltd. constitute a de facto merger. Having conducted the vast majority of the mining activity directly responsible for the continued pollution of the Sacramento River, Mountain Copper, Ltd. and its successors, Stauffer Chemical and Rhone-Poulenc Basic Chemicals, Co., are directly and causally responsible for the formation of acid mine drainage and the release of hazardous substances into the Sacramento River from the Iron Mountain Mine workings.

I. Rhone-Poulenc Basic Chemicals, Co. is also liable by the sale of this property with known adverse environmental impacts to IMMI, a small corporation with insufficient capital to address the environmental problem. In doing so, Rhone-Poulenc Basic Chemicals, Co. "arranged for disposal...of hazardous substances owned or possessed by such person, by any other party or entity, at any facility ...owned or operated by another party or entity...and containing such hazardous substances." Section 107(a)(3) of CERCLA, 42 U.S.C. § 9607(a)(3).

J. No statutory defenses are applicable to Respondents.

V. Determinations

Based on the Findings of Fact and Conclusions of Law, the Director, Hazardous Waste Management Division, EPA Region 9, has made the following determinations:

A. The releases and continuing threatened release of hazardous substances and pollutants or contaminants from the Iron Mountain Mine may present an imminent and substantial endangerment to the public health, welfare, or the environment.

B. In order to prevent or mitigate significant risk of harm to the environment, the remedial actions described in this Order must be implemented to prevent or reduce the release of acid mine drainage into the environment.

C. The remedial measures required by this Order are both necessary and consistent with the National Contingency Plan, 40 Code of Federal Regulations, Part 300.

D. The remedial measures required by this order were selected pursuant to the procedures of the National Contingency Plan. 40 Code of Federal Regulations, Part 300.

E. Section 116(e) of CERCLA, 42 U.S.C. § 9616(e) requires that the President assure substantial and continuous physical on-site remedial action commence at facilities on the National Priorities List in an expeditious manner.

F. This Order is necessary to prevent the further degradation of the Sacramento River with substantial adverse impacts on the public health and the environment.

G. This Order does not address all past damage and continuing threats of damage to the environment caused by the Respondents but requires completion of specific tasks which are part of the response at the facility.

VI. Work to be Performed

Based upon the Findings of Fact, Conclusions of Law and Determinations, Respondents are hereby Ordered to implement the following measures under the direction of EPA.

A. General Obligations Regarding the Remedial Actions

1. Respondents shall finance and perform, at their expense, the implementation of the work as required by this Order and the Appendices hereto.

2. Notwithstanding any approvals which may be granted by the United States or other governmental entities, Respondents shall assume any and all liability arising from or relating to their acts or omissions or the acts or omissions of any of their contractors, subcontractors, or any other person acting on their behalf in the performance of the work required by this Order or their failure to perform fully or complete any work required by this Order.

3. Respondents shall appoint a representative ("Project Coordinator") designated by them to act on their behalf to execute the work required by this Order, in accordance with Section VIII.

4. Respondents shall select a contractor (or contractors) who has relevant expertise in construction and the remediation of hazardous waste problems to conduct the work required by this Order. The selection of the contractor shall be subject to EPA approval. Within 30 days after the effective date of this Order, Respondents shall notify EPA in writing of the name, title and

qualifications of any supervising contractor proposed to be used in carrying out work under this Order. If at any time thereafter Respondents propose to change supervising contractors, Respondents shall give written notice to EPA and shall obtain approval from EPA before the new supervising contractor performs any work under this Order. All work performed by Respondents shall be performed by qualified contractors in accordance with the conditions and schedules specified in this Order.

5. While Respondents may collect, treat, stage, and secure materials on-site, they shall not redeposit hazardous substances back into the Site without the explicit approval of EPA.

6. Respondents shall dispose of any materials taken offsite in compliance with the EPA's Revised Procedures for Implementing Off-Site Response Actions ("Offsite Policy"). (EPA OSWER Directive 9834.11, November 13, 1987) and any amendments thereto.

7. Respondents shall submit all reports (daily, weekly, monthly, etc.) prepared by their contractors and subcontractors concerning this Order to EPA and EPA's designated oversight personnel, according to the schedules set forth or provided for in this Order.

8. Under the provisions of Section 104(e) of CERCLA, EPA explicitly reserves the right to observe the work of the Respondents as it is performed. In addition, at the request of EPA, Respondents shall allow split or replicate samples to be taken by EPA and/or its authorized representatives, of any samples collected by the Respondents or anyone acting on the Respondents'

behalf pursuant to the implementation of this Order. Within seven (7) days after the approval of any sampling plan (including the schedule for implementation), Respondents shall notify EPA of the intended date of commencement of the sampling activity. In addition, Respondents shall notify EPA within 48 hours prior to any modifications or proposed changes to any sample collection activity. Respondents shall notify EPA 30 days prior to the disposal of any such samples, and shall provide EPA with an opportunity to take possession of all or a portion of such samples.

9. Respondents shall notify EPA in a timely manner of any project which is likely to produce data or information of the types described in this Section.

10. All data, factual information, and documents submitted by Respondents to EPA pursuant to this Order shall be subject to public inspection.

11. All submittals required to be submitted to EPA for review by this Order or identified in any workplans developed hereunder, are subject to review and approval or modification by EPA. EPA may unilaterally modify any submittal or require the Respondents to resubmit any submittal for revisions if EPA determines the submittal is unacceptable. Any revised workplan and/or schedule shall be resubmitted within a time to be designated by EPA. Upon approval by EPA, the submittal shall be a binding portion of this Order. Respondents may not make any changes to an approved submittal without EPA approval.

B. Operation and Maintenance of Completed Remedial Actions.

1.1. Respondents shall provide for inspections, operations and maintenance of the following:

(i) the partial cap above the Richmond mineralized zone;

(ii) the Slickrock Creek Diversion;

(iii) the Richmond adit rehabilitation;

(iv) the Upper Spring Creek Diversion;

(v) the copper cementation plants; and

(vi) access roadways and structures.

(Collectively hereinafter "O & M units").

1.2. Within 45 days of the effective date of this Order, Respondents shall submit for EPA review and approval a workplan(s) for inspection, operation and maintenance of the following units for the period from receipt of the order through December 31, 1991:

(i) the partial cap above the Richmond mineralized zone;

(ii) the Slickrock Creek Diversion;

(iii) the Richmond adit rehabilitation;

(iv) the copper cementation plants; and

(v) access roadways and structures.

1.3. Within 45 days of EPA approval of the operations and maintenance manual for the Upper Spring Creek Diversion, required by EPA Order No. 90-08, Respondents shall submit for EPA review and approval a modification of the workplan provided for in subsection 1.2 above to provide for inspection, operation and main-

tenance of the Upper Spring Creek Diversion. Upon approval, the operations and maintenance manual for the Upper Spring Creek Diversion will be deemed to be included in Appendix B to this Order.

1.4. Any workplan(s) for inspection, operation and maintenance submitted pursuant to this section shall assure the full and continued performance of the O & M units identified in this section.

1.5. The workplan(s) for operations and maintenance submitted pursuant to this section shall provide for the capability to conduct in full all activities identified or discussed in the Statement of Work to the Subcontract Document for Maintenance and Support Services (CH2M Hill, Inc., 1990) attached as Appendix C.

1.6. The workplan(s) for inspection, operation and maintenance submitted pursuant to this section shall include a schedule for the conduct of routine inspections and routine maintenance. The schedule shall identify at a minimum all regularly scheduled inspections, maintenance activities, and reporting described in the operations and maintenance manuals for the O & M units, attached as Appendix B. The workplan(s) shall include an inspection checklist for each O & M unit to be used to document inspections, to record deficiencies noted in inspections and to propose corrective measures. The workplan(s) shall also provide for non-routine and emergency inspections, operation and maintenance of the O & M units.

1.7. The workplan(s) for inspection, operation and main-

tenance shall provide sufficient flexibility such that Respondents may request that specified obligations be waived, if Respondents determine that conditions indicate that the work is not needed for a specified period of time.

1.8. The workplan(s) for operation and maintenance shall also provide for flexibility for rescheduling of operation and maintenance activities to accomodate other activity at the Site, including, but not limited to response actions by EPA, upon receipt of a request to reschedule the activity by EPA.

1.9. The workplan(s) for operation and maintenance shall also provide for timely completion of matters not included in the schedule discussed in subsection 1.6 in the event EPA notifies Respondents that such additional activities are necessary to assure that the response action remains effective. Respondents shall complete such additional matters in a prompt manner in accordance with the notice and schedule issued by EPA. Examples of the types of additional activities that might be required are listed in pp. 4-7 of the Statement of Work in Appendix C and discussed in Section 2.3 of Appendix D. In the event EPA notifies Respondents that any such additional activity is necessary, and Respondents anticipate that they may not be able to comply in accordance with the notice and schedule issued by EPA, Respondents may request a conference with the EPA Project Manager to discuss scheduling and design of the additional activity. No requirement of this order shall be waived or suspended due to a request for a conference unless EPA notifies Respondents in writing of such a

waiver or suspension. For any construction activities identified in the workplan, the workplan for that activity shall provide for documentation and completion of the following tasks, more fully described in Appendix D:

(i) Health and Safety Plan (draft and final);

(ii) Program Management Plan (draft and final);

(iii) Quality Assurance Plan (draft and final);

(iv) State and Federal Agency Coordination Plan (draft and final);

(v) Contingency Plan (draft and final);

(vi) Final Construction Drawings and Specifications; and

(vii) Completion of Construction (including but not limited to Certification of Construction Completion and submittal of a Final Construction Report)

1.10. Within 45 days after the construction of any project as part of operation and maintenance, Respondents shall submit for EPA review and approval a modification to the workplan required by this section to provide for inspection, operation and maintenance of the new structure.

1.11. For each calendar year after 1991, Respondent shall submit for EPA review and approval a workplan for inspection, operation and maintenance of the O & M units for the calendar year by September 30 of the preceding year (e.g., the workplan for calendar year 1992 shall be due by September 30, 1991; for calendar year 1993 by September 30, 1992; etc.).

2.1. Within 30 days of the effective date of this Order,

Respondents shall submit for EPA review and approval a workplan and schedule for construction of an access road to the Slickrock Creek pipeline.

2.2. The workplan and schedule submitted pursuant to this section shall provide for submittal of the following documents and completion of the following tasks, more fully described in Appendix D:

(i) Health and Safety Plan (draft and final);

(ii) Program Management Plan (draft and final);

(iii) Quality Assurance Plan (draft and final);

(iv) State and Federal Agency Coordination Plan (draft and final);

(v) Contingency Plan (draft and final);

(vi) Final Construction Drawings and Specifications; and

(vii) Completion of Construction (including but not limited to Certification of Construction Completion and submittal of a Final Construction Report)

2.3 Within 45 days of the acceptance by EPA of the completion of the access road, Respondents shall submit for EPA review and approval a revision of the workplan(s) for inspections, operation and maintenance of the Slickrock Diversion to provide for inspections, operation and maintenance of the access road. For purposes of inspections, operation and maintenance, the access road shall be treated as a portion of the Slickrock Diversion.

3.1. Within 14 days of the effective date of this Order,

Respondents shall submit for EPA review and approval a workplan and schedule for installation and operation of a weir below Spring Creek Debris Dam.

3.2. The workplan and schedule submitted pursuant to this section (for the weir) shall provide for submittal of the following documents and completion of the following tasks, more fully described in Appendix D:

(i) Health and Safety Plan (draft and final);

(ii) Program Management Plan (draft and final);

(iii) Quality Assurance Plan (draft and final);

(iv) State and Federal Agency Coordination Plan (draft and final);

(v) Contingency Plan (draft and final);

(vi) Final Construction Drawings and Specifications; and

(vii) Completion of Construction (including but not limited to Certification of Construction Completion and submittal of a Final Construction Report).

3.3 Within 45 days of the acceptance by EPA of the completion of the weir, Respondents shall submit for EPA review and approval a revision of the workplan(s) for inspections, operation and maintenance of the Upper Spring Creek Diversion to provide for inspections, operation and maintenance of the weir. For purposes of inspections, operation and maintenance, the weir shall be treated as a portion of the Upper Spring Creek Diversion.

C. Respondents shall submit the following documents more fully described below and in Appendix D:

1. Daily and Weekly Construction Reports

2. Final Construction Report

3. Monthly Operations and Maintenance reports.

D. The provisions of this Order are severable. In the event any provision, section, sentence or requirement of the Order is ruled unenforceable or otherwise invalid such ruling shall not affect the validity of any other portion of the Order. Compliance with the terms of this Order does not excuse noncompliance with the terms of any other order. Inability of any Respondent to complete the requirements of the Order in the time frames specified shall not be a valid reason for refusing compliance with the requirements of the Order.

E. This Order does not supercede or replace any previously existing order or any portion thereof, except as specifically identified here:

1. The requirements of subsection VI.B.1.2(v) of EPA Order 90-08 shall be superceded by the provisions of this Order after EPA approval of the operations and maintenance manual for the Upper Spring Creek Diversion.

2. The requirements of subsection V.E of EPA Order No. 89-18 shall be superceded by the provisions of this Order after EPA approval of the workplan and schedule provided for in subsection VI.B.1.2.(iv) with respect to access roadways and structures which are identified in the approved workplan and schedule.

3. The requirement in subsection V.B(1) of EPA Order No.

89-18, requiring Respondents to "provide for an operations and maintenance program that ensures continued performance" of the copper cementation plants shall terminate upon EPA approval of the workplan required by this section.

VII. Worker Health and Safety Plan

The Worker Health and Safety Plan that the Respondents will submit pursuant to Section VI of this Order shall satisfy the requirements of the Occupational Safety and Health Guidance for Hazardous Waste Site Activities [October 1985 (DHH 5 NOISH) Publication No. 85-115] and EPA's Standard Operating Safety Guides (EPA, OERR, November 1984) and amendments thereto. The Emergency Response Plan that the Respondents will submit pursuant to Section VI of this Order shall address both workers at the Site and public exposure to releases or spills at and from the Site.

VIII. Project Coordinator

A. By the effective date of this Order, EPA and Respondents shall each designate a Project Coordinator to monitor the progress of the Remedial Action, to coordinate communication between EPA and the Respondents and to oversee the implementation of this Order. EPA and Respondents each have the right to change their respective Project Coordinator. Such a change shall be accomplished by notifying the other party in writing at least five calendar days prior to the change. To the maximum extent pos-

sible, communications between Respondents and EPA and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Consent Order, shall be directed through the Project Coordinators.

B. The EPA Project Coordinator shall have the authority vested in the On-Scene Coordinator by 40 C.F.R. § 300 et seq., including such authority as may be added by amendments to 40 C.F.R. § 300, as well as the authority to ensure that the Remedial Action is performed in accordance with all applicable statutes, regulations, and this Order. The Remedial Project Manager for IMM for the purposes of this Order is:

Rick Sugarek
United States Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, California 94105
(415) 744-2226

C. The EPA Project Coordinator or On-Scene-Coordinator shall also have the authority to require a cessation of the performance of the Remedial Action or any other activity at the Site that, in the opinion of the EPA Project Coordinator or On-Scene Coordinator, may present or contribute to an endangerment to public health, welfare, or the environment or cause or threaten to cause the release of hazardous substances from the Site. The absence of the EPA Project Coordinator from the Site shall not be cause for stoppage of work.

D. Respondents' Project Coordinator may assign other repre-

sentatives, including other contractors, to serve as a site representative for oversight of performance of daily operations during remedial activities.

IX. Site Access

A. To the extent that the Site or any other area where work is to be performed is presently owned or controlled by parties other than those bound by this Order or to the extent that access to or easements over property are required for the proper and complete performance of this Order, Respondents shall obtain access agreements from the present owners or those persons who have control over the property, including lessees, within sixty (60) days of the effective date of this Order. Site access agreements shall provide access to Respondents, Contractors, the United States, EPA, State and local agencies, and their representatives. In the event that site access agreements are not obtained within the sixty (60) day period, the Respondents shall notify EPA within sixty five (65) days of the effective date of this Order regarding both the lack of, and efforts to obtain, such agreements. If Respondents fail to gain access within 60 days, they shall continue to use best efforts to obtain access until access is granted.

B. During the effective period of this Order, Respondents shall provide the United States, EPA, the State, and their representatives, including contractors, access at all times to the site, and any contiguous property owned or controlled by any

Respondent.

X. Compliance With Applicable Laws And Regulations

All actions required to be taken pursuant to this Order shall be undertaken in accordance with the requirements of all applicable federal, state and local laws, regulations, and permitting requirements, in accordance with CERCLA and the NCP.

XI. Data Exchange: Sampling and Analysis

A. Respondents shall provide EPA with all technical data and information relating to the environmental problems, public health threats, site conditions, site use and history, contaminant incidence and migration, and regional environmental conditions relating to the Site as such data and information becomes available, including but not limited to:

1. Previous studies or reports;
2. Communications between Respondents and local, state or other federal authorities;
3. Permits from local, state of federal authorities regarding hazardous substance use or contamination at the Site;
4. Raw analytical, monitoring, sampling, geographical, hydrogeological, geologic, meteorological, surface water, seismic, landfill gas, subsurface gas, or ambient air data, resulting from any environmental testing relating to the Site including documentation of all related Quality Assurance/Quality Control (QA/QC) results;
6. Technical working drafts and final reports, letter reports, work plans, documents, records, files, memoranda, status reports, and written material developed using any source, including EPA, relating to the Site;
7. Technical maps, computer generated graphics, charts, tables, data sheets, geologic cross- sections, lithologic logs, graphs, photographs, slides, or other such material developed relating to the Site; and
8. Computerized technical data and information relating to the Site, including any creation, sorting, display and organization of a data base.

B. Under the provisions of Section 104(e) of CERCLA, EPA explicitly reserves the right to observe the work of the Respondents as it is performed. In addition, at the request of EPA, Respondents shall allow split or replicate samples to be taken by EPA and/or its authorized representatives, of any samples collected by the Respondents or anyone acting on the Respondents' behalf pursuant to the implementation of this Order. Within seven (7) days after the approval of any sampling plan (including the schedule for implementation), Respondents shall notify EPA of the intended date of commencement of the sampling activity. In addition, Respondents shall notify EPA within 48 hours prior to any modifications or proposed changes to any sample collection activity. Respondents shall notify EPA 30 days prior to the disposal of any such samples, and shall provide EPA with an opportunity to take possession of all or a portion of such samples.

C. Respondents shall notify EPA in a timely manner of any project which is likely to produce data or information of the types described in this Section.

D. All data, factual information, and documents submitted by Respondents to EPA pursuant to this Order shall be subject to public inspection.

E. Within 60 days of the effective date of this Order, Respondents shall propose to EPA a plan and system to manage and organize data collected pursuant to this Order. Upon approval by EPA, Respondents shall implement the data management plan and system.

XII. Community Relations

As requested by EPA, Respondents shall cooperate with EPA in providing information to the public and shall participate in the preparation of appropriate information disseminated to the public and in public meetings which may be held or sponsored by EPA to explain activities at or concerning the Site.

XIII. Retention of Records

A. Respondents shall preserve and retain all records and documents now in their possession or control or in the possession or control of their divisions, employees, agents, accountants, contractors or attorneys which relate in any manner to the Site, regardless of any document retention policy to the contrary, for six (6) years after the completion of the remedial action or termination of this Order, whichever is later.

B. Until this six (6) year period expires, the Respondents shall preserve, and shall instruct all contractors, all contractor's subcontractors, and anyone else acting on the Respondents' behalf at the IMM Site to preserve (in the form of originals or exact copies, or in the alternative, microfiche of all originals) all records, documents and information of whatever kind, nature, or description relating to the Site. During the six (6) year period following the completion of the Site Remedial Action, or earlier if requested by EPA, originals or copies of all such records, documents, and information shall be delivered

to the EPA Project Coordinator or designee.

C. After this six (6) year period, the Respondents shall notify the EPA no later than sixty (60) days prior to the destruction of such documents. Upon request by EPA made within thirty (30) days of such notice, the Respondents proposing to destroy records shall make available to the EPA originals or copies of any such records prior to their destruction.

XIV. Notice of Obligations to Successors-in-Title

A. Within thirty (30) days after the entry of this Order, Respondents shall record a certified copy of this Order with the Recorder's Office, Shasta County, State of California. Thereafter, each deed, title, or other instrument of conveyance for property included in the Site shall contain a notice stating that the property is subject to this Order and any lien retained by the United States, and shall reference the recorded location of the Order and any restrictions applicable to the property under this Order.

B. The obligations of each Respondent who owns any interest in property included in the Site, with respect to the provision of access under Section IX, shall run with the land and shall be binding upon any and all such Respondents and any and all persons who subsequently acquire any such interest or portion thereof (hereinafter "Successors-in-Title"). Within ten (10) days after the entry of this Order, each Respondent who owns any interest in property included in the Site shall record at the Registry of

Deeds, or other office where land ownership and transfer records are maintained for the property, a notice of obligation to provide access and related covenants. Each subsequent deed to any such property included in the Site shall reference the recorded location of such notice and covenants applicable to the property.

C. Any Respondent that owns an interest in property included in the Site and any Successor-in-Title shall, prior to the conveyance of any such interest, give written notice of this Order to the grantee and written notice to EPA of the proposed conveyance, the name and address of the grantee, and the date on which notice of the Order was given to the grantee. In the event of any such conveyance, the Respondent's obligations under this Order shall continue to be met by all Respondents and, subject to approval by the United States and the State, by the grantee.

XV. Submittals

All submittals and notifications to EPA required by this Order or the plans shall be made to:

Chief, Remedial Action Branch
Hazardous Waste Management Division
United States Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, California 94105

Copies of all submittals and notifications shall be sent to the Remedial Project Manager. An additional copy of each submit-

tal shall be sent to the State at the following address: Department of Health Services, 10151 Croyden Way, Sacramento, CA 95827.

All approvals and decisions of EPA made regarding the submittals and modifications shall be communicated to Respondents by the Director, Hazardous Waste Management Division or the Director's designee. No informal advice, guidance, suggestions, or comments by EPA regarding reports, plans, specifications, schedules, or any other matter will relieve Respondents of their obligation to obtain formal approvals as required by this Order.

XVI. Endangerment During Implementation

The Director, Hazardous Waste Management Division, EPA Region 9, may determine that acts or circumstances (whether related to or unrelated to this Order) may endanger human health, welfare or the environment and may order the Respondents to stop further implementation of this Order until the endangerment is abated.

In the event of any action or occurrence during the performance of the work which causes or threatens to cause a release of a hazardous substance or which may present an immediate threat to pubic health or the environment, Respondents shall immediately take all appropriate action to prevent, abate, or minimize such release or endangerment, and shall immediately notify EPA's Project Coordinator. If EPA's Project Coordinator is unavailable, Respondents shall notify the EPA Emergency Response Sec-

tion, Region 9. Respondents shall take such action as in accordance with all applicable provisions of the Health and Safety and Contingency Plans developed pursuant to the Statement of Work.

XVII. Nonliability of the Government

The United States Government and its employees and other representatives shall not be liable for any injuries or damages to persons or property resulting from the acts or omissions of Respondents, their employees or other representatives caused by carrying out this Order by virtue of Respondents compliance with this Order.

For the purposes of this Order, the United States Government is not a party to any contract with the Respondents.

XVIII. Noncompliance

A. A willful violation or failure or refusal to comply with this Order may subject Respondents to a civil penalty of up to $25,000 per day in which the violation occurs or failure to comply continues, pursuant to the provisions of Section 106(b)(1) of CERCLA, 42 U.S.C. § 9606(b)(1). Failure to comply with this Order without sufficient cause may also subject Respondents to punitive damages of up to three times the total costs incurred by the United States for site response pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C.§ 9607(c)(3).

B. EPA may take over the response action at any time if EPA determines that Respondents are not taking appropriate ac-

tion. EPA may order additional actions it deems necessary to protect public health, welfare, or the environment.

XIX. Opportunity to Confer

Respondents may request a conference with the Director, Hazardous Waste Management Division, EPA Region 9, or his staff to discuss the provisions of this Order. At any conference held pursuant to Respondents request, Respondents may appear in person or by counsel or other representatives for the purpose of presenting any objections, defenses or contentions which Respondents may have regarding this Order. If Respondents desire such a conference, Respondents must make a request orally within three (3) days of receipt of this Order, and confirm the request in writing within seven (7) days of the receipt of this Order.

XX. Notice of Intent to Comply

Upon receipt of this Order, Respondents shall orally inform EPA of their intent to comply with the terms of this Order. The oral notice shall be confirmed within seven (7) days of the receipt of this Order by written notice to the Director. Failure to timely notify EPA of the Respondents' intent to comply will be construed by EPA as a refusal to comply.

If a Respondent will comply with only a part of the Order the Respondent must clearly identify which portions of the Order it will not comply with and state the reasons for noncompliance with the other portions of the Order. In particular, for any

portion of this Order with which a Respondent will not comply, Respondent shall state whether it has a good faith belief that it is not liable or that the response action required by this Order is inconsistent with the NCP or that it is unable to comply for some other identified reason. Notification to EPA that Respondents will not comply, and supplying EPA with the reasons for such non-compliance, does not excuse any non-compliance with this Order.

XXI. U.S. EPA Periodic Review to Assure Protection of Human Health and the Environment

To the extent required by Section 121(c) of CERCLA, 42 U.S.C. § 9621(c), and applicable regulations, EPA will review the Site at least every five (5) years after initiation of the remedial action to assure that the work performed pursuant to this Order protects human health and the environment. Until such time as EPA certifies completion of the work, Respondents shall conduct the requisite studies, investigations, or other response actions as determined necessary by EPA in order to permit EPA to conduct such review.

XXII. Notice to State

Notice of the issuance of this Order has been given to the State of California. EPA will consult with the California Department of Health Services, as appropriate, to ensure that the plans submitted by Respondents are consistent with State requirements.

XXIII. Effective Date

Notwithstanding any conferences requested pursuant to the provisions of this Order, this Order is effective on the date of execution by the Director, Hazardous Waste Management Division, EPA Region 9.

IT IS SO ORDERED on this 2nd day of Jan., 1991.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

by: _____
Jeff Zelikson
Director, Hazardous Waste Management Division
EPA, Region 9

Contacts:
Rick Sugarek
Remedial Project Manager

Michael B. Hingerty
Assistant Regional Counsel

Appendix A - Record of Decision (Oct. 1986)

Appendix B -

Maintenance Manual, Phase I Richmond Adit Rehabilitation, Iron Mountain Mine, Redding, California; EPA WA 127-9L17.0; November 1989

Adit Procedures Manual, Phase I Richmond Adit Rehabilitation; Iron Mountain Mine, Redding, California; EPA WA 127-9L17.0; November 1989

Operation and Maintenance Manual, Partial Cap Above Richmond Mine; Iron Mountain Mine, Redding, California; EPA WA 228-9R17.0; November 1989

Spring Creek Watershed Pollution Control Program; Operation and Maintenance Manual, Slickrock Creek Diversion; January 1990.

Appendix C - "Subcontract Documents for Maintenance Support Services at Iron Mountain Mine, Redding, California" dated October 19, 1990.

Appendix D - Statement of Work

Appendix D

Statement of Work
for
Iron Mountain Mine

Site Operations and Maintenance
and Support Activities

EPA Order 91 - 07

Section 1. Introduction

This Statement of Work (SOW) provides additional information on procedures and tasks for performance of an inspection program, an operations and maintenance (O&M) program and a construction services support program for the Iron Mountain Mine (IMM) Superfund site near Redding, California.

The inspection, O&M and construction support programs have the following objectives:

- To conduct the inspection, O&M and construction support programs consistent with the ROD, CERCLA, SARA, NCP and other EPA guidance.
- To prepare all necessary documents, plans and designs.
- To perform the inspection, O&M and construction support programs in accordance with plans and designs approved by the U.S. Environmental Protection Agency (EPA).

This SOW has been completed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, the Superfund Amendments and Reauthorization Act of 1986 (SARA), the National Contingency Plan (NCP), and the following EPA guidance.

- EPA, Office of Solid Waste and Emergency Response (OSWER), Superfund Remedial Design and Remedial Action Guidance, Directive 9355.0-4A, June 1986.
- EPA, OSWER, CERCLA Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies, Directive 9835.1A, May 1988.
- EPA, OSWER, CERCLA Compliance with Other Laws Manual, OSWER Directive 9234.1-01, EPA/540/G-89/006, August 1988.
- EPA, OSWER, CERCLA Compliance With Other Laws Manual: Part II. Clean Air Act and Other Environmental Statutes and State Requirements, OSWER Directive 9q234.1-02, EPA/540/G-89/009, August 1989.

This SOW is organized into three sections including this introductory section. Information presented in the remaining two sections is summarized as follows:

- Section 2--Scope of Activities. This section describes what work will be accomplished under Administrative Order No. 91-07.

- Section 3--Inspection, O&M, and Construction Support. This section provides additional detail on the plans, reports and activities required pursuant to Section VI of the Order.

Section 2. Scope of Activities

Below is presented a description of "O&M units" and a description of the work to be performed to implement an inspection program, and an O&M program for those O&M units for the Iron Mountain Mine site. Also presented below is a description of the work to be performed to implement the construction support program for the Iron Mountain Mine site.

2.1 Description of O&M Units

Partial Cap

A partial cap for Brick Flat Pit and caved and sunken areas was constructed to divert surface water from penetrating into the subsurface mineralized materials. This construction includes capped and filled areas; membrane and geotexile liners; drainage ditches, piping, and appurtenances; and access roadways.

Adit Rehabilitation

The Richmond Adit was rehabilitated to provide access to the mineralized material for further investigations by EPA of existing AMD sources and possible control techniques. The rehabilitated section of the adit extends approximately 1,300 feet into the mountain from the entry portal at about the 2,600-foot level. Improvements consisted of ground support in the adit; AMD collection piping; electrial generator, lighting, and communications system; ventilation fans, air controls and ducting; a water tank; and air and water piping.

Slickrock Creek Diversion

A diversion dam was constructed on Slickrock Creek to divert clean water around ore material to reduce the heavy metals flowing into the Spring Creek Reservoir and subsequently into the Sacramento River. This construction consists of an access roadway, a small concrete diversion structure across the creek and a gate to control the flows, a 36-inch-diameter pipeline around the slide area, and a stilling basin at the outlet of the pipeline.

Upper Spring Creek Diversion

The Upper Spring Creek Diversion is currently under construction. When completed, Upper Spring Creek will be diverted to Flat Creek and allow an increased storage of contamiants behind the Spring Creek Debris Dam. This provides more flexibility in timing releases to match flows in the Sacramento River for dilution to safe levels.

The Upper Spring Creek Diversion consists of a drop inlet structure, tunnel, pipeline, energy dissipation structure and necessary miscellaneous private property and stream bed improvements. Upper Spring Creek will be diverted to Flat Creek with a maximum diversion of 800 CFS.

Access Roads

Primary access to the IMM site is by way of Iron Mountain Road. Portions of this roadway are asphalt paved public roadway. Portions of Iron Mountain Road are secured within the gate to IMM with portions of the secured roadway asphalt paved and portions gravelled. Iron Mountain Road provides access from the property entrance to Brick Flat Pit at the top of the mountain. From the entrance to Brick Flat Pit a system of roads, some constructed during the Partial Cap Remedial Action, provide access to caved and cracked ground areas, interception ditches and study areas on the mountain.

A gravelled road branches off of Iron Mountain Road to provide access to the Slickrock Cementation Plant. This road will be extended to provide access to the Slickrock Diversion pipeline and diversion dam for inspection and maintenance activities.

2.2 Inspection Program

The Respondents shall submit for EPA review and approval a workplan and schedule of implementation that provides for routine and emergency inspection of the O&M units described in Section 2.1 of this SOW. The workplan and schedule of implementation shall provide for an inspection program that assures the continued full performance of the O&M units described in Section 2.1 as intended and authorized in EPA's October 3, 1987 Record of Decision (ROD) for the IMM site. The inspection program shall provide for the types of inspections, inspections of the appropriate detail, and the frequency of inspections necessary to assure that any adverse conditions that might affect its continued and full performance is detected, recorded, and reported for routine or emergency O&M procedures under the Operations and Maintenance Program as required by Section 2.3 of this SOW.

If an O&M manual is available for a particular O&M unit, the workplan for the inspection program shall provide for at minimum the types of inspections and inspections of the appropriate detail identified in the O&M Manual for that O&M unit. Attachment B provides O&M Manuals for:

Partial Cap;
Slickrock Creek Diversion; and
Adit Rehabilitation.

When the Upper Spring Creek O&M Manual is completed and Approved by EPA, it shall become a part of Attachment B to this Order. The Respondents shall then modify the workplan and schedule of implementation for the inspection program to provide for the types of inspections and inspections of the appropriate detail identified in the Upper Spring Creek O&M menual.

Additionally the workplan for the inspection program shall provide for compliance with the Adit Procedures Manual which is provided in Attachment B.

The above O&M manuals and the Adit Procedures Manual are intended as guidelines for inspections operation and maintenance activities to assure full and continued performance of the O&M units. Inspection and O&M requirements may change over the life of the O&M units.

The respondents shall inform all interested parties of real or potential problems with the O&M units described in Section 2.1 of this SOW, and their general status with respect to operations and maintenance.

The Schedule of Implementation for the Inspection Program shall be consistent with the requirements of the above referenced O&M Manuals. The schedule of Implementation may take into consideration the expected life of the facility, current facility condition, expected usage over the time period, and expected or possible operational or maintenance problems in setting the frequency and extent of inspections.

2.3 Operations and Maintenance Program

The Respondents shall submit for EPA review and approval a workplan and schedule for implementation that provides for routine and emergency operations and maintenance (O&M) of the O&M units described in Section 2.1 of this SOW. The workplan shall provide for an O&M program that assures the continued full performance of the remedial actions and remedial projects authorized and constructed pursuant to the October 3, 1986 Record of Decision (ROD). The workplan for the O&M program shall at minimum provide for all operation and maintenance activities detailed in the operations and maintenance manuals in Attachment B:

Partial Cap
Slickrock Creek Diversion
Adit Rehabilitation

When the EPA Upper Spring Creek O&M manual becomes available, it shall become a part of Attachment B to this Order. The workplan and schedule for the O&M program shall be modified by the Respondents to provide for O&M activities detailed in that manual. Mine entry for purposes of O&M shall comply with the Adit Procedures Manual (in Attachment B).

The workplan for the O&M program shall provide for performance of routine O&M tasks[1] in accordance with the schedule of Implementation. The workplan shall provide for performance of Special O&M Tasks[2] to correct conditions as required to assure access and to maintain the full integrity of the remedial actions and projects for their expected life. The workplan shall provide for performance of special O&M tasks, as directed by EPA, that are necessary: 1) to assure full operability and safety prior to commencement of EPA remedial investigation activities and 2) to make facility improvements determined by EPA during Quality Assurance Period inspections to be necessary to assure full performance of the remedial action or remedial project consistent with the ROD. The workplan providing for special O&M task performance shall provide a schedule of implementation with appropriate response times for tasks considered to be emergency (12-24 hours), non-routine (7-14 days), and routine (14 days to 2 months). The Respondents shall coordinate any maintenance activities that might affect resources or operations of responsible state and federal agencies. The workplan shall address the manner in which this coordination will be carried out.

The workplan shall provide for an O&M program that provides for operation of the O&M described in Section 2.1. Although only minimal operation of the O&M units is expected to be necessary by design and function, the need to alter operations of the diversion may arise due to emergency conditions or at times of the year due to wet or dry conditions. The workplan shall provide for coordination of placing the O&M unit in operation (start-up) and coordination and implementation of operations. The workplan shall provide for coordination with all appropriate state and federal agencies.

2.4 Construction Support Program

The Respondents shall submit for EPA review and approval a workplan and schedule for implementation that provides for implementation of a construction support program.

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1. Examples of routine O&M tasks include the following tasks identified in the Statement of Work to the subcontract documents for Maintenance and Support Services, CH2MHill, Inc. (1990) which is provided in Attachment C:

BA1, BA2, BA3, BA4, BB1, BB2, BB3, BB4, and BC1.

2. Examples of special O&M tasks include the following tasks identified in the above Statement of Work provided in Attachment C:

SA1, SA2, SA3, SA4, SA5, SA6, SA7, SA8, SA9, SB1, SC1, and SC2.

The workplan shall provide for implementation of a construction support program consisting entirely of special tasks[3], determined by EPA to be necessary construction or construction support to enable on-going EPA site investigations. The workplan shall provide for a schedule of implementation with apporpriate response times for tasks considered to be emergency (12-24 hours), non-routine (1-14 days), and routine (1 month to 4 months).

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3. Examples of construction and construction support tasks include the following tasks identifed in the Subcontract Documents for Maintenance and Support Services, CH2MHill, INc. (1990), provided in Attachment C:

SD1, SD2, SD3, SD4, SD4, SD6, SD7, SD8, SD9 (modified to work under EPA direction), SD10, and SD11.

Section 3 Inspection, O&M, and Construction Support

This Section discusses general obligations with respect to the workplan and schedule for implementation of the Inspection, O&M, and Construction Support programs. This Section also contains additional detail on the specific tasks and reports to be included in the workplan and schedule.

3.1 Workplan and Schedule

As required by Section VI of the Order, the Respondents shall prepare workplans for the Inspection, O&M and Construction Support Programs. Each workplan shall serve as the overall workplan for all activities necessary to implement each program and provide for coordination of implementation with the appropriate state and federal agencies. The workplan shall be consistent with this SOW, the ROD, CERCLA, the NCP, and other EPA guidance, and shall expand on how the described tasks will be completed. This plan shall be completed in accordance with standard remedial investigation work planning guidance (OSWER Directive 9355.3-01). The plan shall document the responsibilities and authority of all organizations and key personnel involved. After approval by EPA, the plans described in this section shall be part of the workplan.

The workplan shall be accompanied by a schedule which states when the tasks are to be completed. The schedule shall be consistent with the specific requirements identified in this section.

The workplan for the Inspections and O&M programs shall include:

- o Health and Safety Plan
- o Program Management Plan
- o Quality Assurance Plan
- o State and Federal Agency Coordination Plan

The workplan for the O&M program shall also include a

- o Contingency Plan

The workplan for the Construction Support Program shall include:

- o Health and Safety Plan
- o Program Management Plan
- o Quality Assurance Plan

3.2 Elements of workplan and schedule

i. Health and Safety Plan:

The Respondents shall submit for EPA review and comment a Health and Safety Plan to protect the health and safety of individuals who will be on the site during design and construction. Respondents shall complete the Health and Safety Plan:

- o CERCLA sections 104(f) and 111(c) (6)
- o EPA Orer 1440.2--Health and Safety Requirements for Employees Engaged in Field Activities
- o EPA Order 1440.11--Respiratory Protection
- o EPA Occupational Health and Safety Manual
- o EPA Standard Operating Safety Guide Manual (OSWER Directive 9285.1-02; July 1988)
- o EPA Field Standard Operating Procedures Manual: No. 9--Site Safety Plan (OSWER Directive 9285.2-05; April 1985)
- o Federal Mine Safety and Health Act, 30 U.S.C. Sections 801.962.
- o Part 1910 of 29 C.F.R. revised July 1, 1982, OSHA Standards for General Industry
- o National Institute of Occupational Safety and Health Manual of Analytical Methods, Volumes I-VII
- o Threshold Limit Values (TLV) for Chemical Substances and Physical Agents in the Work Environmental with Intended Changes. Adopted by the American Conference of Governmental Industrial Hygientists. Latest edition.
- o ANSI z88.2--1980, American National Standard Pratices for Respiratory Protection.
- o Air Sampling Instruments for Evaluation of Atmospheric Contaminants, 6th edition, 1983, American Conference of Governmental Industrial Hygienists
- o Appropriate State health and safety statutes

After making necessary corrections, the Respondents shall submit the final Health and Safety Plan with the final design documents.

ii. Program Management Plan

The Respondents shall submit, for EPA review and approval a Program Management Plan (PMP). The PMP shall document the overall management plan for all program activities including construction activities. The PMP shall include project organization and responsibilities; communication and documentation procedures; changes orders and submittal review and approval procedures.

EPA will provide comments on the submitted draft PMP. After making necessary corrections, the Respondents shall submit the final PMP.

The Respondents shall be responsible for managing the construction process including full-time construction inspection during any construction activity. The full-time onsite inspector

shall verify compliance with all environmental and technical requirements identified in the task design; review all daily reports and construction activities to verify that all work complies with all contract requirements; note and resolve all discrepancies immediately; and review and initial all contractor reports (daily, weekly, monthly, etc.).

iii) Quality Assurance Plan

A site-specific Quality Assurance Plan (QAP) shall be prepared by the Respondents. The plan will provide inspection and construction project organization guidelines that shall outline and identify inspection and construction performance criteria and construction quality control (QC) and quality assurance (QA) responsibilities of the constructin contractor, and Respondents. The QAP should be consistent with EPA QA/QC procedures.

EPA will provide comments on the draft QAP. After necessary corrections the Respondents shall submit for EPA final review and approval the final QAP.

iv) State and Federal Agency Coordination Plan

The Respondents shall keep all interested parties informed of either real or potential problems with the O&M units described in this SOW and their general status.

The Respondents shall submit for EPA review and approval a plan that specifies coordination procedures for start-up and changes of operations of the O&M units described in Section 2.1 of this SOW, and maintenance activities that may affect the performance of the above O&M units. The plan shall provide for notification of and coordination with state and federal agencies responsible for potentially affected resources.

EPA will provide comments on the draft plan. After making necessary corrections, the Respondents shall submit a final State and Federal Agency Coordination Plan.

v) Contingency Plan

The Respondents shall submit a draft contingency plan. The contingency plan shall anticipate potential operational or access problems associated with operation of the O&M or required maintenance. The contingency plan shall provide for responses to each potential problem to minimize resultant impacts to the performance of the remedial action or minimize access limitations. The contingency plan shall provide for coordination with state and federal agencies whose activities or resources may be impacted by implementation of provisions of the contingency plan.

vi) Implementation

The Respondents shall provide for completion of all tasks under this SOW.

vii) Construction Activities

Designs

All construction activities performed to implement this SOW shall be pursuant to designs and specifications approved by EPA. Any necessary changes to approved designs must be review and approved by EPA prior to any work being performed on the activity.

Pre-Construction Conference

1. Before issuing a notice to proceed, the Respondents, their Subcontractor, and the Subcontractor's Superintendent shall attend a preconstruction conference.

2. The purpose of the conference will be to introduce key personnel and define authority and responsibility of each and establish the administrative procedures to be followed during construction.

3. EPA may determine that the requirement for a preconstruction conference is unnecessary for any individual O&M construction task due to the limited scope of the task or due to timing considerations.

4. Procedures shall be discussed and established at this meeting for implementatin of the following:
   a. Construction submittals
   b. Inspection by outside agencies
   c. Change order requests,
   d. Site safety requirements,
   e. Project meetings, and
   f. Site Maintenance and Cleanup

Submittals

Prior to starting work on an O&M construction task, the Respondents shall submit a written description of its approach for conducting work on the O&M task with emphasis on procedures to be used in any designated hazardous work area. The following items shall be addressed as a minimum:

1. The anticipated number of on-site personnel and their job functions. The anticipated equipment on-site in performing the work.
2. Submissions of a site safety plan.
3. Identify the Health and Safety Officers and his/her education and experience.
4. A decontamination plan.
5. An Emergency Response Plan in accordance with Paragraph (L) of 29 CFR 1910.120.

6. The designated work area.

Construction Safety Program

The Respondents shall develop and maintain for the duration of the construction activity, a safety program that will effectively incorporate and implement all required provisions of federal, state, and local safety regulations for construction.

Site Security

A. Security of the designated work area from trespass and vandalism shall be the Respondents responsibility.

B. The Respondents shall have access to its designated work area over the property owner's roadway and through vehicle gates that may at times be open or shut and locked as determined by the property owner.

Certification of Construction Completion

Before preparing the final construction report, the Respondents shall provide EPA with a notarized certification that the remedy has been constructed in conformance with the drawings and specifications and all construction is complete.

Final Construction Report

After the final inspection is satisfactorily completed, a final construction report shall be submitted by the Respondents to EPA for review. The final construction report will include the following elements:

- o A brief description of outstanding construction items from the prefinal inspection and an indication that the itmes were resolved
- o A synopsis of the work defined in the SOW and certification that this work was performed.
- o An explanation of any modifications to work in the SOW and why these were necessary

If EPA is satisfied that the task has been properly constructed, EPA will provide written notice to the Respondents of EPA's acceptance of the constructed project.

viii) Reports

Inspection Documentation

Respondents shall develop inspection checklists for each O&M unit for EPA review and approval. Respondents shall utilized the approved inspection checklists for documentation of all inspections, noting the detection of any deficiencies that may require maintenance and to propose corrective maintenance.

Daily and weekly construction reports

As described in Section 3 of this SOW, the Respondents shall have a full-time, onsite inspector during construction. The on-site inspector shall review all daily reports and construction activities to verify that all work complies with all design requirements. The onsite inspector shall review all reports (daily, weekly, and monthly) and shall initial each.

The daily reports shall be accumulated for 1 week and sent to EPA. The daily reports, at a minimum shall discuss the daily activities, summaries of problems and actions taken to rectify problems, and change orders. Respondents shall provide these reports during operations and maintenance construction activities.

Monthly operations and maintenance reports

The Respondents shall prepare and submit ongoing O&M reports to EPA. These reports shall be provided monthly by the 15th of the month for O&M activities performed during the preceding calendar month during operations and maintenance. Each report shall include, at a minimum, the following elements:

- Description of O&M activities initiated, performed or completed during the calendar month
- Inspection and O&M activities to be undertaken during the next month
- Copies of weekly construction reports
- Copies of completed inspection checklists
- Coordination activities with State and Federal agencies
- O&M unit deficiencies or conditions requiring corrective maintenance identified on an inspection checklist during the calendar month and proposed action.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105

02 JAN 1991

CERTIFIED MAIL NO. P 765 058 289
RETURN RECEIPT REQUESTED

Rhone-Poulenc Basic Chemicals Co.
c/o Prentice Hall Corp. Systems, Inc.
32 Loockerman Square, Suite L-100
Dover, Delaware 19901

Re: Iron Mountain Mine
Order pursuant to 42 U.S.C. § 9606

Dear Sir or Madam:

Enclosed with this letter is an order from the Environmental Protection Agency ("EPA") directing Rhone-Poulenc Basic Chemicals Co. (formerly Stauffer Chemical Co., a Division of Rhone-Poulenc, Inc.), to take certain actions to prevent an imminent and substantial endangerment to the public health and the environment due to releases of hazardous substances from the Iron Mountain Mine property near Redding, California. The order requires you to conduct operation and maintenance activities for identified response actions at Iron Mountain Mine, as selected in the October 3, 1986 Record of Decision or the subject of previous orders, Order No. 89-18 and Order No. 90-08.

EPA is not employing the special notice procedures of 42 U.S.C. § 9622(e) prior to requiring the action in the order, due to the need to initiate operation and maintenance activities as soon as possible.

If you have any questions regarding this matter, please call Rick Sugarek of my staff at (415) 744-2226. If you have any legal questions please have your attorney contact Michael B. Hingerty of the Office of Regional Counsel at (415) 744-1315.

Sincerely,

Jeff Zelikson
Director
Hazardous Waste Management Division

Enclosures

cc: Iron Mountain Mines, Inc.
T.W. Arman
Joseph Kelley, Esq. - ICI
John E. Varnum, Esq. - Baker & McKenzie
James Pedri - RWQCB
Jim Austreng - DHS
Don Diebert - DHS
Ramon Perez, Esq. - DHS
Harry Rectenwald - Fish and Game
Sara Russell, Esq. - California Attorney General
William Allen - Department of Interior
Temi Berger, Esq. - Bureau of Reclamation
Kris Doebbler - Bureau of Reclamation
Robin Kohn, Esq. - NOAA
Valerie Lee, Esq. - Department of Justice
David Glazer, Esq. - Department of Justice